



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,987	02/04/2004	Pawan Seth	1259-001/CPB	3583
27572	7590	11/14/2008		
HARNESS, DICKEY & PIERCE, P.L.C.				
P.O. BOX 828				
BLOOMFIELD HILLS, MI 48303				
EXAMINER				
PERREIRA, MELISSA JEAN				
ART UNIT		PAPER NUMBER		
1618				
MAIL DATE		DELIVERY MODE		
11/14/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/771,987

**Applicant(s)**

SETH ET AL.

**Examiner**

MELISSA PERREIRA

**Art Unit**

1618

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-31,33-59,61-85,87-109 and 114-120 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-31,33-59,61-85,87-109 and 114-120 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsman's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.
2. Claims 1,2,4-31,34-59,61-85,87-109 and 114-120 are pending in the application.

***Affidavit/Declaration***

3. The declaration under 37 CFR 1.132 filed 4/25/08 is sufficient to overcome the rejection of claims 1,2,4-31,33-59,61-85,87-109 and 114-120 based upon the argument that the reference of Seth describes applicant's own work.

***New Grounds of Rejection***

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1,2,4-12,19,22-31,33-40,45-47,50-59,61-74,77-85,87-100,103-109 and 114 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. It is clearly described in the specification that specific water-insoluble, water permeable film-forming polymer, water-soluble polymer and plasticizer

as well as specific combinations of the specific water-insoluble, water permeable film-forming polymer, water-soluble polymer and plasticizer are required to provide the dissolution profiles recited in the instant claims. Therefore the dissolution profiles recited in the instant claims for a tablet achieving an extended release which does not provide for specific water-insoluble, water permeable film-forming polymer, water-soluble polymer and plasticizer and specific combinations of the specific water-insoluble, water permeable film-forming polymer, water-soluble polymer and plasticizer is not clearly described in the instant claims.

***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1,2,4-7,11,12,15,17,18,22 and 28-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Moeckel et al. (US 5,955,106).
7. Moeckel et al. (US 5,955,106) teaches of an extended release pharmaceutical tablet that contains a metformin hydrochloride core in about 70-95% (i.e. 850 mg) (column 3, lines 8-13; column 4, lines 23-24) containing a hydrophilic swelling/expanding substances (i.e. polyvinyl alcohol or polyvinylpyrrolidone, hydroxypropyl methylcellulose, etc.) (column 2, lines 20-30) and excipients, such as magnesium stearate (stearic acid), silicon dioxide (column 4, line 35) which is coated with a film forming polymer, such as ethyl cellulose, methylhydroxypropyl cellulose, cellulose derivatives via the standard coating process (column 3, lines 53-57; column 4, lines 1-9; column 5, lines 13-14; example 1). The dissolution of the active substance

can be delayed by the film envelope (coating) and the film envelope (coating) may contain pore formers but does not necessarily contain such pore formers (column 4, lines 7-9). Thus the film envelope (coating) (i.e. ethyl cellulose) of the disclosure anticipates the coating of the instant claims.

8. The controlled release of metformin from the tablets of the disclosure should be over a time period of 0.5-10 hours (column 5, lines 31-33). The extended release pharmaceutical tablet of the disclosure encompasses the extended release pharmaceutical tablet of the instant claims and is capable of the same functions and has the same properties, such as the dissolution profile.

9. Claims 1,2,4,5,7-13,15,17-19,29 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Cheng et al. (US 6,099,859).

10. Cheng et al. (US 6,099,859) teaches of an extended (controlled or sustained) release pharmaceutical tablet that does not employ an expanding polymer and contains a core of metformin hydrochloride in about 50-98% or 75-95% (i.e. 850 mg) which provides a continuous and non-pulsating therapeutic level of metformin to an animal or human over a twelve hour to twenty-four hour period (column 1, preferably lines 8-22; column 3, lines 34-39 and 66+; column 5, lines 35-41; example 3). The extended (controlled or sustained) release pharmaceutical tablet of the disclosure does not contain monomeric pore forming agents and anticipates the extended release pharmaceutical tablet of the instant claims as evidence by the specification which states

that a, "controlled release formulations release active drug compounds into the body gradually and predictably over a 12- to 24- hour period.." (specification, p2, lines 1-3).

11. The core of extended (controlled or sustained) release pharmaceutical tablet of the disclosure comprises an antihyperglycemic drug, optionally a binding agent (i.e. polyvinylpyrrolidone) in about 0-40% (column 3, lines 40-48) and optionally an absorption enhancer with a semipermeable membrane, such as cellulose ethers, cellulose esters coating surrounding the core in about 50-99% (column 1, lines 34-43; column 4, lines 10-44 and 58). The water-insoluble, water-permeable film forming polymer (i.e. cellulose ester) of the disclosure anticipates the water-insoluble, water-permeable film forming polymer of the instant claims as evidenced by the specification (specification, p8, [0026]). The coating of the disclosure may contain a flux enhancer/water-soluble polymer, such as hydroxypropyl cellulose, polyvinyl alcohols and a plasticizer (i.e. stearate or dibutylsebacate in about 0-25% (column 4, lines 29-44 and 59-63; column 5, lines 1-7; column 6, line 56) where the flux enhancer increases the volume of fluid imbibed into the core to enable the dosage form to dispense substantially all of the antihyperglycemic drug through the passageway (column 4, lines 28-24). The coating containing a flux enhancer of the disclosure anticipates the coating of the instant claims as it is permeable to metformin.

12. The dissolution of the tablet provides for treatment over a twelve to twenty-four hour period (fig 1; column 2, lines 16-21; column 5, lines 51-57; column 7, lines 13-18). The extended release pharmaceutical tablet of the disclosure encompasses the extended release pharmaceutical tablet of the instant claims and should therefore be

capable of the same functions and have the same properties, such as the dissolution profile.

***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 1,2,4-31,33-59,61-85,87-109 and 114-120 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moeckel et al. (US 5,955,106) in view of Oshlack et al. (US 5,472,712) and Matharu et al. (US2003/0021841A1) and in further view of Buhler et al. (US 6,592,900B1) and/or Remington's Pharmaceutical Sciences 1990 18<sup>th</sup> Ed. Chpt. 89, p1637.

15. Moeckel et al. (US 5,955,106) teaches of an extended release pharmaceutical tablet that contains a metformin hydrochloride core in about 70-95% (i.e. 850 mg) (column 3, lines 8-13; column 4, lines 23-24) containing a hydrophilic swelling/expanding substances (i.e. polyvinyl alcohol or polyvinylpyrrolidone, hydroxypropyl methylcellulose, etc.) (column 2, lines 20-30) and excipients, such as magnesium stearate (stearic acid), silicon dioxide (column 4, line 35) which is coated with a film forming polymer, such as ethyl cellulose, methylhydroxypropyl cellulose, cellulose derivatives via the standard coating process (column 3, lines 53-57; column 4, lines 1-9; column 5, lines 13-14; example 1) as well as that stated above. Moeckel et al.

does not disclose the use of the water-soluble polymer polyvinylpyrrolidone in the coating or the use of crospovidone or sodium starch glycolate as expanding agent/disintegrant in the core.

16. Oshlack et al. (US 5,472,712) discloses a controlled release tablet comprising a core containing an active agent (i.e. therapeutically active agent) coated with an hydrophobic polymer (i.e. ethylcellulose) (column 2, lines 60+; column 3, lines 35-56), a plasticizer (i.e. dibutyl sebacate) (column 8, lines 31+) and a water-soluble polymer/release modifying agents (i.e. polyvinylpyrrolidone, cross-linked polyvinylpyrrolidone, etc) (column 12, lines 54+).

17. Matharu et al. (US2003/0021841A1) discloses the preparation of controlled release metformin HCl tablets which comprise metformin HCl (10-90%), a hydrophilic erodible component (10-90%) (i.e. polyvinylpyrrolidone) and a hydrophobic component (1-30%) (i.e. glyceryl behenate) (abstract; p2, [0024]; p1, [0011-0012]) to improve the compressibility of the tablet. The tablets of the disclosure also contain silicone dioxide (example 2). The dissolution profile provides for 20-90% dissolved from 1-7 hours (p2, [0025]).

18. Buhler et al. (US 6,592,900B1) discloses the use of crospovidone/polyvinylpyrrolidone as a disintegrant for tablets whereas crospovidone is a particularly suitable disintegrant (column 3, lines 24-26; column 2, lines 42-43) and is merely a crosslinked version of polyvinylpyrrolidone.

19. Remington's Pharmaceutical Sciences **1990** 18<sup>th</sup> Ed. Chpt. 89, p1637 discloses crospovidone and sodium starch glycolate as well known and commonly used



disintegrants/expanding agents for tablet preparations. Sodium starch glycolate is known to swell seven- to twelve fold in all three dimensions in less than 30 sec. The disintegrating agent is mixed with the active agent and diluents prior to granulation (p37, paragraph 7,8 and 10).

20. The extended release pharmaceutical tablet of the combined disclosures encompass the extended release pharmaceutical tablet of the instant claims and therefore is capable of the same functions and has the same properties, such as the dissolution profile. Furthermore, it is obvious to vary and/or optimize the amount of (compound) provided in the composition, according to the guidance provided by (reference), to provide a composition having the desired properties such as the desired (ratios, concentrations, percentages, etc.). It is noted that "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

21. At the time of the invention it would have been obvious and predictable to one ordinarily skilled in the art to utilize polyvinylpyrrolidone (Oshlack et al.) in the coating of the extended release pharmaceutical tablets of Moeckel et al. as Moeckel et al. and Oshlack et al. are both drawn to the same utility, such as an extended release pharmaceutical tablet comprising a metformin core and ethyl cellulose controlled release coating.

22. It would have been obvious and predictable to utilize glyceryl behenate in the core of the extended release pharmaceutical tablet of Matharu et al. to improve the

compressibility of the tablet as the disclosures of Moeckel et al. and Matharu et al. are directed to the same utility, i.e. a controlled release metformin HCl tablets.

23. It would also have been obvious to substitute the polyvinylpyrrolidone of Moeckel et al. for its equivalent, crospovidone (Buhler et al.), as a core disintegrant/expanding agent for the extended release pharmaceutical tablets of Moeckel et al. as crospovidone is particularly stable. Sodium starch glycolate is a well known and commonly used disintegrants/expanding agent for tablet preparations (Remington's). One would have a reasonable expectation of success for substituting the disintegrant/expanding agent polyvinylpyrrolidone contained in the core of the extended release tablet of Moeckel et al. for the crospovidone or sodium starch glycolate as they all have the same utility.

24. Claims 1,2,4-31,33-59,61-85,87-111 and 114-120 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng et al. (US 6,099,859) in view of Oshlack et al. (US 5,472,712) and Matharu et al. (US2003/0021841A1) and in further view of Buhler et al. (US 6,592,900B1) and/or Remington's Pharmaceutical Sciences 1990 18<sup>th</sup> Ed. Chpt. 89, p1637.

25. Cheng et al. (US 6,099,859) teaches of an extended (controlled or sustained) release pharmaceutical tablet that does not employ an expanding polymer and contains a core of metformin hydrochloride in about 50-98% or 75-95% (i.e. 850 mg) which provides a continuous and non-pulsating therapeutic level of metformin to an animal or human over a twelve hour to twenty-four hour period (column 1, preferably lines 8-22; column 3, lines 34-39 and 66+; column 5, lines 35-41; example 3) as well as that stated

above. Cheng et al. does not disclose the use of the water-soluble polymer polyvinylpyrrolidone in the coating, glyceryl behenate as a core excipient or the use of crospovidone or sodium starch glycolate as expanding agent/disintegrant in the core.

26. Oshlack et al. (US 5,472,712) discloses a controlled release tablet comprising a core containing an active agent (i.e. therapeutically active agent) coated with an hydrophobic polymer (i.e. ethylcellulose) (column 2, lines 60+; column 3, lines 35-56), a plasticizer (i.e. dibutyl sebacate) (column 8, lines 31+) and a water-soluble polymer/release modifying agents (i.e. polyvinylpyrrolidone, cross-linked polyvinylpyrrolidone, etc) (column 12, lines 54+).

27. Matharu et al. (US2003/0021841A1) discloses the preparation of controlled release metformin HCl tablets which comprise metformin HCl (10-90%), a hydrophilic erodible component (10-90%) (i.e. polyvinylpyrrolidone) and a hydrophobic component (1-30%) (i.e. glyceryl behenate) (abstract; p2, [0024]; p1, [0011-0012]) to improve the compressibility of the tablet. The tablets of the disclosure also contain silicone dioxide (example 2). The dissolution profile provides for 20-90% dissolved from 1-7 hours (p2, [0025]).

28. Buhler et al. (US 6,592,900B1) discloses the use of crospovidone/polyvinylpyrrolidone as a disintegrant for tablets whereas crospovidone is a particularly suitable disintegrant (column 3, lines 24-26; column 2, lines 42-43) and is merely a crosslinked version of polyvinylpyrrolidone.

29. Remington's Pharmaceutical Sciences **1990** 18<sup>th</sup> Ed. Chpt. 89, p1637 discloses crospovidone and sodium starch glycolate as well known and commonly used

disintegrants/expanding agents for tablet preparations. Sodium starch glycolate is known to swell seven- to twelve fold in all three dimensions in less than 30 sec. The disintegrating agent is mixed with the active agent and diluents prior to granulation (p37, paragraph 7,8 and 10).

30. The extended release pharmaceutical tablet of the disclosure encompasses the extended release pharmaceutical tablet of the instant claims and should therefore be capable of the same functions and have the same properties, such as the dissolution profile. Furthermore, it is obvious to vary and/or optimize the amount of (compound) provided in the composition, according to the guidance provided by (reference), to provide a composition having the desired properties such as the desired (ratios, concentrations, percentages, etc.). It is noted that "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

31. At the time of the invention it would have been obvious and predictable to one ordinarily skilled in the art to utilize polyvinylpyrrolidone (Oshlack et al.) in the coating of the extended release pharmaceutical tablets of Cheng et al. as Cheng et al. and Oshlack et al. are both drawn to the same utility, such as an extended release pharmaceutical tablet comprising a metformin core and the use of ethyl cellulose (cellulose ethers) controlled release coatings.

32. It would also have been obvious to substitute the polyvinylpyrrolidone of Chang et al. for its equivalent, crospovidone (Buhler et al.), in the core of the extended release

pharmaceutical tablets of Cheng et al. as crosopovidone is particularly stable. Sodium starch glycolate is well known and commonly substituted crosopovidone for tablet preparations (Remington's). One would have a reasonable expectation of success for substituting the polyvinylpyrrolidone contained in the core of the extended release tablet of Cheng et al. for the crosopovidone or sodium starch glycolate.

### ***Conclusion***

No claims are allowed at this time.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MELISSA PERREIRA whose telephone number is (571)272-1354. The examiner can normally be reached on 9am-5pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Hartley can be reached on 571-272-0616. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael G. Hartley/  
Supervisory Patent Examiner, Art Unit 1618

/Melissa Perreira/  
Examiner, Art Unit 1618